

CLAIMS

What is claimed:

1. A device for effecting heat transfer from a first fluid medium to a second fluid medium passing within the confines of a conduit, said device comprising an inlet for receiving and an outlet for discharging said second fluid medium, said conduit having a substantially circular cross section and longitudinal axis, said device further comprising a core pipe having a diameter and substantially circular cross section, said core pipe being located along said longitudinal axis and a series of tubular members, a first tubular member being helically wound upon said core pipe and radially extending from said core pipe and at least one additional tubular member being helically wound upon a previously applied helically wound tubular member wherein all windings of each tubular member being uniformly and equally spaced along said core pipe, said windings being applied at approximately equal 45° angles to said longitudinal axis so that each turn of a tubular member forms an interstice with a turn of an adjacent tubular member of approximately 90° , said tubular members and core pipe being in fluid communication having an inlet to receive said first fluid medium and an outlet to discharge said first fluid medium, said device being further characterized by each tubular member being sized with regard to the core pipe such that the ratio of the diameter of the core pipe to the diameters of the tubular members being substantially whole numbers and wherein the spacings between starts of all tubular members are substantially equal.
2. The device of claim 1 wherein said core pipe and all tubular members are copper brazed as a singular assembly fit within said conduit.
3. The device of claim 2 wherein a plurality of inlets are provided for said second fluid medium proximate said inlet of said conduit, said plurality of inlets being uniformly spaced about the periphery of said conduit.
4. The device of claim 1 wherein the diameter of said core pipe is approximately twice the diameter of said tubular members.

5. The device of claim 4 wherein said first tubular member comprises four individual tubes helically wound around said core pipe.
6. The device of claim 3 wherein three inlets are provided for introducing said second fluid to said conduit.
7. The device of claim 1 wherein bolt circle diameters are established between tubular windings within each helically wound tubular member, said bolt circle diameters being substantially constant throughout all tubular members.